Listing of the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (Original) A pharmaceutical composition for vaccination, comprising:

(i) a bacterial Cu,Zn-superoxide dismutase (Cu,Zn-SOD) of the dimeric type, or a fragment, variant or derivative of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind intact full length Cu,Zn-SOD; or

(ii) a nucleic acid coding for the Cu,Zn-SOD fragment, variant or derivative; and

a pharmaceutically acceptable carrier.

2. (Original) A pharmaceutical composition according to Claim 1, wherein said composition provides protection against meningococcal infection.

3. (Previously presented) A pharmaceutical composition according to Claim 1, wherein said composition provides protective immunity to *Actinobacillus pleuropneumoniae* infection.

4. (Previously presented) A pharmaceutical composition according to Claim 1, wherein said composition provides protective immunity to infection from a gram negative bacterial species selected from the group consisting of *Pasteurellaceae; Neisseria; Haemophilus; Salmonella; and Escherichia.*

5. (Previously presented) A pharmaceutical composition according to claim 1, wherein the Cu,Zn-SOD is obtainable from a recombinant gene cloned from bacteria.

6. (Original) A vaccine comprising (i) a bacterial Cu,Zn-superoxide dismutase (Cu,Zn-SOD) of the dimeric type, or a fragment, variant or derivative of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind intact full length Cu,Zn-SOD; or (ii) a nucleic acid coding for the bacterial Cu,Zn-SOD fragment, variant or derivative.

7. (Original) A vaccine according to Claim 6, wherein the Cu,Zn-SOD is obtainable from a recombinant gene cloned from bacteria.

8. (Previously presented) A vaccine according to Claim 6, wherein said vaccine provides protection against meningococcal infection.

9. (Previously presented) A method of preparing a pharmaceutical composition comprising:

1) isolating a gene for a bacterial Cu,Zn-SOD of the dimeric type or a fragment, variant or derivative of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind the full length intact Cu,Zn-SOD; and

2) (a) synthesizing the Cu,Zn-SOD or fragment, variant or derivative from the gene; and combining said Cu,Zn-SOD,

fragment, variant or derivative, with a pharmaceutically acceptable carrier, or

(b) combining said gene with a pharmaceutically acceptable carrier.

10. (Original) A pharmaceutical preparation comprising an antibody to a bacterial Cu,Zn-SOD of the dimeric type, or a fragment, derivative or variant of the Cu,Zn-SOD, wherein antibodies raised against said fragment, derivative or variant also bind intact full length Cu,Zn-SOD; and a pharmaceutically acceptable carrier.

11. (Original) A pharmaceutical preparation according to Claim 10, wherein said antibody provides protective immunity to meningococcal disease.

12. (Original) A pharmaceutical preparation according to Claim 10, wherein said composition provides protective immunity to *Actinobacillus pleuropneumoniae* infection.

13. (Previously presented) A pharmaceutical preparation according to Claim 10, wherein said composition provides protective immunity to infection from a gram negative bacterial species selected from the group consisting of *Pasteurellaceae; Neisseria; Haemophilus; Salmonella; and Escherichia.*

14. (Previously presented) A pharmaceutical preparation according to Claim 10, wherein said antibody displays bactericidal activity.

15. (Previously presented) A multivalent vaccine comprising a plurality of Cu,Zn-SODs of the dimeric type, or fragments, derivatives or variants thereof, wherein antibodies raised against said fragments, derivatives or variants also bind full length Cu,Zn-SOD, and wherein said plurality of Cu,Zn-SODs are from the same or different species of Gram negative bacteria.

16. (Previously presented) A multivalent vaccine comprising a bacterial Cu,Zn-SOD of the dimeric type, or fragments, derivatives or variants wherein antibodies raised against said fragments, derivatives or variants also bind full length Cu,Zn-SOD, and a second protein that is not a Cu,Zn-SOD.

17. (Previously presented) A multivalent vaccine according to Claim 15, wherein said vaccine provides protective immunity to meningococcal disease.

18. (Previously presented) A method of treating an individual with a bacterial infection comprising administering a composition comprising a bacterial Cu,Zn-superoxide dismutase of the dimeric type, or a fragment, derivative or variant of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind intact full length Cu,Zn-SOD.

19. (Previously presented) A method according to Claim 18, wherein the bacterial infection is due to Gram negative species of bacteria.

20. (Previously presented) A method according to Claim 18, wherein the bacterial infection is due to meningococcal infection.

21 - 27. (Cancelled)

28. (Previously presented) A method of treating an individual with a bacterial infection comprising administering a composition comprising an effective amount of an antibody specific to bacterial Cu,Zn-SOD of the dimeric type, or a fragment of said antibody.

29. (Previously presented) A method according to Claim 28 wherein the antibody is a monoclonal antibody.

30. (Previously presented) A method of treating an individual with a bacterial infection comprising administering a composition comprising a nucleic acid encoding a bacterial Cu,Zn-superoxide dismutase of the dimeric type, or a fragment, derivative or variant of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind intact full length Cu,Zn-SOD.

31. (Previously presented) A method of treating or preventing bacterial infection comprising administering an effective amount of a bacterial Cu,Zn-SOD or a fragment, variant or derivative of the Cu,Zn-SOD, wherein antibodies raised against said fragment, variant or derivative also bind intact full length Cu,Zn-SOD.

32. (Previously presented) A method according to Claim 18, wherein said composition provides protective immunity to *Actinobacillus pleuropneumoniae* infection.

33. (Previously presented) A method according to Claim 19, wherein said gram negative bacterial species are selected from the group consisting of *Pasteurellaceae; Neisseria; Haemophilus; Salmonella; and Escherichia.*

34. (Previously presented) A method according to Claim 28, wherein the bacterial infection is a meningococcal infection.

35. (New) A pharmaceutical composition comprising a compound selected from the group consisting of:

(i) a full length wild type Cu,Zn-SOD; and

(ii) a fragment of a full length wild type Cu,Zn-SOD;

wherein a monoclonal antibody raised against a Cu,Zn-SOD from *Actinobacillus pleuropneumoniae* will bind both full length Cu,Zn-SOD and said fragment.